REMARKS

Claims 1-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sen et al. (U.S. Patent Number 6,556,556) in view of McDermott (EP 1175034). The applicants respectfully disagree with these rejections and request reconsideration. Nonetheless, the applicants have amended independent claims 1, 7 and 12 to more clearly highlight the patentability of the present invention over the prior art.

Claims 1 and 12 recite determining a lower-layer packet size based on the error rate, wherein determining the lower-layer packet size comprises determining an optimal **number of higher-layer packets that can be multiplexed onto a single lower-layer packet**. In addition, claim 7 recites determining a PPP packet size based on the error rate, wherein determining the PPP packet size comprises determining an optimal **number of UDP/IP packets that can be multiplexed onto a single PPP packet**.

The Examiner cites McDermott column 8, lines 9-19 and column 6, lines 39-44 as teaching this claim language (with respect to original claims 5 and 10). McDermott column 8, lines 9-19 reads:

> In the transmit unit 112 (Fig. 5B) the demodulated bit error rate and/or bit error rate trend is supplied via an antenna 128 and a demodulator 130 to threshold units 132 and 134 which indicate a change in size for the data packets to a packet size controller 136. The controller 136 receives encoded data from encoder 138, generates a packet, and transmits it to the receiver via modulator 140and antenna 128.
> The controller 136 (28) can be configured in a number of different ways as previously mentioned as well as in the manner shown in Figs. 6 - 8.

McDermott column 6, lines 29-44 reads:

> The first embodiment can be implemented in a version that makes the data field size a small predetermined value, such as 1500, which will not cause drop-outs when the number of 1's counted reaches a predetermined value, such as 2000, or a large predetermined value, such as 4000 when the 1's count does not reach the predetermined value. In this version, as illustrated in Fig. 4, a magnitude comparator 92 is used to decide if the quantity of 1's (from the 1's totalizer 22) in the serial data stream is greater than

> 2000. If the quantity of 1's is greater than 2000, a digital multiplexer 94 switches to send an "N" smaller than 2000 (1500) to the packet generator 96 producing packets in the preferred IEEE format. If the result from the 1's totalizer 22 is not greater than 2000, then the digital multiplexer 94 is switched to send a large "N" (4000).

Thus, both of these passages teach that McDermott adjusts the size of packets. However, McDermott is referring to "packing up" **bits from a data stream**. For example, McDermott makes this clear at column 3, line 2 through column 4, line 41, which reads (emphasis added):

> A first embodiment of the present invention is a system that transmits image data or any type of data in packets by RF carrier where packet size is adjusted responsive to the number of 1's being transmitted. **In actual practice, the data field size is determined based on the data in the data stream, and then the data is written into the data field of the packet, which thereby changes the packet size.** The packet size (or data field size) is reduced when the number of 1's is increasing and packet size is increased when the number of 1's is falling. Thresholds are used to effect the changes in packet size. The thresholds for increasing and decreasing the packet size are made different to prevent oscillation. **More particularly, digital radios struggle transmitting a continuous stream of "1" values. After a certain quantity of continuous 1's the radio will have drop-outs (0's).** Typically, the data is broken into (fixed) packets of a predetermined size to guarantee reliable operation. This invention uses data pipeline techniques to analyze (image) data being transmitted using digital packets. **The packet size is dynamically changed based on the continuous quantity of 1's in the data being transmitted.** After a predetermined quantity of 1's has been detected in the serial data stream, the packet size is made smaller to preserve the image quality (decreasing the effective data rate). As the quantity of continuous 1's in the data stream decrease, the packet size is increased to increase the effective data rate, while maintaining good quality. The packet size decrease (1 quantity) threshold and the packet size increase (1 quantity) threshold are different quantities. This provides a hystersis that prevents oscillation.
> As depicted in Fig. 2, **incoming digital packet data, which is to be formed into a packet, is supplied to a synchronous digital data delay unit 20 which can be a FIFO (First-In-First-Out) shift register** which delays the incoming data for a period of time sufficient to count the continuous quantity of 1's that will cause a drop out to occur. For example, if the continuous quantity of 1's that can be sent through the RF modulator without a dropout is 2000, then the synchronous digital data delay must be 2000 bits long plus any digital delays incurred due to the threshold detection. **This delay unit allows the packet size of a packet that is about to be transmitted to be changed.** A 1's totalizer unit 22 totals the number of continuous 1's in the data stream until reset. An up counter which is reset by each 0 in the incoming digital data can be used as the totalizer.

Thus, McDermott teaches a synchronous digital data delay unit such as a shift register,

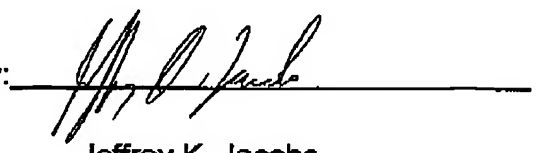
which allows the packet size of a packet that is about to be transmitted to be changed. The applicants submit that McDermott is therefore teaching a bit-bundling apparatus fed by a stream of incoming data.

In contrast to McDermott, the independent claims recite determining an optimal number of higher-layer packets that can be multiplexed onto a single lower-layer packet as part of determining a lower-layer packet size based on an error rate. Therefore, part of determining the lower-layer packet size is determining an optimal number of the higher-layer packets to be transmitted.

Thus, since neither Sen nor McDermott, either independently or in combination, teach all of the limitations of base claims 1, 7 and 12, or therefore, all the limitations of their dependent claims, the applicants assert that the Examiner has not shown anticipation nor made a prima facie case for obviousness. No remaining grounds for rejection or objection being given, the applicant now respectfully submits that the claims in their present form are patentable over the prior art of record, and are in condition for allowance. As a result, allowance and issuance of this case is earnestly solicited.

The Examiner is invited to contact the undersigned, if such communication would advance the prosecution of the present application. Lastly, please charge any additional fees (including extension of time fees) or credit overpayment to Deposit Account No. **502117 -- Motorola, Inc.**

Respectfully submitted,
R. Pazhyannur et al.

By: 

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